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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,922	03/12/2004	Hans Ernst Jan Hofland	020681-001610	6834

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EXAMINER	
KISHORE, GOLLAMUDI S	
ART UNIT	**PAPER NUMBER**
1615	

MAIL DATE	DELIVERY MODE
07/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/799,922	HOFLAND ET AL.	
	Examiner	Art Unit	
	Gollamudi S. Kishore, Ph.D	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) *7-10 and 12-37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election with traverse of Group I and 'viral infections' as the species in the reply filed on 5-30-07 and in the voice mail message on 7-3-07 is acknowledged. The traversal is on the ground(s) that the examination of the subject matter recited in the claims of groups I and II would not place a substantially greater burden on the examiner. This is not found persuasive because the examiner is required to show one-way distinctiveness between the groups and this has been done so by the examiner. Furthermore, the examiner has also established the differences in the classification.

The requirement is still deemed proper and is therefore made FINAL.

Claims included in the prosecution are 1-6 and 11.

Claim Rejections - 35 USC § 112

2. Claims 1-6 and 11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for in vitro inhibition of HSV and HIV by octylglycerol containing liposomes, does not reasonably provide enablement for generic 'single chain lipid active agent' and prevention of infection. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in In re Wands, 8 USPQ2d, 1400 (Fed.Cir.1988). Among these factors are: (1) the nature of the invention; 2) the state of the prior art; 3) the relative skill of those in the art; 4) the predictability or unpredictability of the art; 5) the breadth of the claims; 6) the amount of

direction or guidance presented; 7) the presence or absence of working examples; and 8) the quantity of experimentation necessary. When the above factors are weighed, it is the examiner's position that one skilled in the art could not practice the invention without undue experimentation.

1) The nature of the invention: the invention concerns with a method of prevention of an infection using a liposomal formulation containing a single chain lipid.

2) The state of the prior art: the state of the prior art is very high in terms of formulating the liposomal compositions containing specific drugs for the treatment of various diseases but not preventing disease with a generic term, infection which can be due to any microorganism.

3) The relative skill of those in the art: the skill of one of ordinary skill in the art is very high (Ph.D level technology).

4) The predictability or unpredictability in the art: while there is general predictability in formulating the liposomal or proliposomal formulations, there is unpredictability in the art of preventing disease states such as AIDS, HSV infections and other viral diseases. Infections can be caused by any organism including, viruses, bacteria, micobacteria, fungi and parasites. Just because one specific compound (octyl glycerol) inhibits a specific virus in vitro, one cannot extrapolate the results to prevention of the infection by that specific virus in vivo by any other single chain lipid, let alone prevent any infection caused by any other infectious agent. Recent well-known example of drug resistant strain of tuberculosis can be cited as interest. Furthermore, in vitro studies may or may not be enough to predict a compound's effect in vivo and the examiner cites the

reference of Zips (In Vivo, 19, pp. 1-8, 2005) in this context (see page 1 (Translational research chain in evaluation of anticancer agents on col. 2, page 1 and page 3, col. 2, last but one para).

5). The breadth of the claims: instant claim is very very broad in terms of the active agent and the disease to be prevented. Said claim 1 does not recite any specific active agent and the specific disease to be prevented. The term, 'single chain lipid active agent' includes multitudes of compounds including fatty acids, fatty acid esters and any aliphatic or aromatic compound containing a single fatty acid chain. Furthermore, as pointed out above, infections can be causes by any microorganism and even in the elected species, 'viral infections', there are RNA and DNA viruses each acting by different mechanisms at any time and it is impossible to determine when the individual will be exposed to any specific microbial agent and prevent such an exposure or prevent the subsequent infection.

6) The amount of direction of guidance provided: instant specification provides no guidance at all in terms of preventing diseases states.

7) The presence or absence of working examples: as pointed out above, infection can be caused by any microorganism and instant specification provides no working examples as to how the diseases can be prevented using the claimed formulation. What is shown in the examples is the use of one specific compound, 'octylglycerol' on specific viruses HSV and HIV in vitro.

8) The quantity of experimentation necessary: since the claim 1 does not recite any specific active agent and prevention of any specific disease state, it is difficult for one of

ordinary skill in the art to choose the proper active agent and prevent a disease without undue experimentation.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The difference between the 'topical formulation' and 'dermal formulation' is unclear. Similar is the case with 'mucosal', rectal and vaginal formulations.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hostetler (US 2001/0033862).

Hostetler teaches liposomal formulations containing single chain lipids for the inactivation of HIV virus (abstract, 0034-0042; 0050-0051; 0155-0156; claims).

7. Claims 1-2, 4-5 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Spevak (J. Am. Chem. Soc., vol. 115, pp. 1146-1147 (1993).

Spevak teaches the inhibitory effect of influenza virus by liposomes containing a single chain lipid (pages 1146-1147).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eibl (US 2002/0173489) in combination with Ho (US 2004/0208921, Hostetler (US 2001/0033862), Firshein (6,121,245) individually or in combination.

Eibl discloses formulations containing single chain lipids, which include alkylglycerols for viral infections such as HIV (0028, 0049-0057, 0064-0066, 0089, claims, claims 21, 26, 49, 51, 52, 54 and 57). What is lacking in Eibl is the teaching of the use of liposomes as carriers for the alkylglycerols.

What is lacking in Eibl is the teaching of the use of liposomes as delivery agents.

Ho while disclosing liposomal formulations containing drugs for targeted delivery to lymphoid tissues teaches the advantages of liposomes or lipid complexes. According to Ho, as drug delivery systems, liposomes are especially promising because they can modulate the pharmacokinetics of liposome-associated drugs, which is not possible with non-lipid associated, or free drugs. Any number or combinations of lipid-anti HIV drug or lipid-anti-HIV biological complexes can be subcutaneously injected into HIV infected mammalian subject so that high concentrations of stable lipid-drug complexes can be preferentially delivered to the lymphoid tissue via lymphatic vessels, instead of

delivering intravenously and HIV reservoirs within the infected lymphoid cells can be targeted effectively (abstract, 0004, 0009, 0013-0015, 0028, 0031, 0033, 0035, examples and claims). One of the lipids, which could be used, in addition in the liposomes is monoglycerides (alkylglycerols) (0034).

Hostetler while disclosing a method of treating viral infections teaches that in the form of liposomes, the antiviral agents are preferentially taken up by macrophages and monocytes, cells which have been found to harbor the target HIV virus (abstract, 0014, 0050 and 0051).

Firshein teaches while disclosing a method of treating cancer using alkylglycerols teaches that these compounds that these compounds can be incorporated into liposomes and that ordinary glycerol ethers, after incorporation into phospholipids, can activated the body's immune defense system (col. 4, lines 55-61; col. 10, lines 4-20).

It would have been obvious to one of ordinary skill in the art to use liposomes as carriers for alkylglycerols taught by Eibl because of the advantages of liposomes taught by Ho, Hostetler and Firshein.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gollamudi S. Kishore, Ph.D whose telephone number is (571) 272-0598. The examiner can normally be reached on 6:30 AM- 4 PM, alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Woodward Michael can be reached on (571) 272-8373. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gollamudi S Kishore, Ph.D
Primary Examiner
Art Unit 1615

GSK